Proposed Indicator Chemical List Approach
May 27, 2008

Introduction

At the RI Data presentation meetings with EPA on March 19th and April 2nd it was agreed that the indicator chemicals lists for the Nature and Extent, Loading/Fate and Transport, and Site-wide CSM sections of the RI, as well as the chemicals to be modeled in the hybrid F&T modeling should be developed and agreed to by the LWG/EPA as soon as possible.

Draft lists of indicator chemicals are proposed for:

1. Nature and Extent (for all media: sediments/sediment traps, surface water, biota, and TZW) (Table 1)
2. Loading and Fate and Transport (Table 2)
3. Site-wide CSM Section (very preliminary) (Table 3)

The lists for item 2 flow from the final lists for nature and extent (item 1). The list proposed in Table 3 is an interim list of chemicals that were found to pose risk based on the comprehensive Round 2 report data evaluation; this list will likely be expanded based on the baseline risk assessments and as well as further discussions with EPA.

Nature and Extent Indicator Chemicals

The guidelines we used to develop the N&E lists are based on the process that was used in the R2R. These were:

1. the chemical was a COPC (based on the R2 risk screens)
2. the chemical was both a HH and Eco iCOC or potential iCOC
3. the chemical had a relatively high frequency of detection (FOD, e.g. generally greater than 50%) in surface sediments

In addition, we reviewed EPA's Round 2 Report comments on indicator chemicals to be mapped by media (EPA specific comment Nos. 180 and 206). EPA lists chemicals to be mapped in these comments for sediments and biota. We also received verbal input from EPA at the March 19th and April 2nd RI data presentation meetings. At those meetings, the main additional factor that EPA asked us to consider that was not a guideline used in the Round 2 report was additional "chemicals with widespread sources in the harbor" that were not already indicator chemicals (i.e., excluding PCBs, DDx, etc). The LWG subsequently reviewed the upland COIs information compiled in the upland site summaries and identified three main compound groups with widespread sources; these were metals, PAHs, and TPH.

Table 1 lists the indicator chemicals proposed for N&E mapping in each media. Table 1 is an expanded version of Table 6.0-2 from the Round 2 report and includes summaries of the key information that was used to develop the lists. The approach used to develop the list for each matrix is listed below:

Sediment and Sediment Traps:

Subset of Round R2R COPC list (EPA agreed on 4/2 not to wait for RI COPC list)
Status of a COPC as a R2 Eco/HH iCOC or potential Eco/HH iCOCs
Frequency of Detection (FOD) – these values are updated in the attached table based on the current project database (through R3A)
EPA Comments on the R2R, chemicals that EPA states "should" be mapped are added IF their FOD in sediments > 20%
General reconsideration of compounds with widespread sources

Surface Water:

Tracks the sediment indicator list with some chemicals removed due to low FODs

Biota:

Generally tracks sediments and surface water lists; chemicals removed due to lower FODs

TZW:

This is the same list presented in the R2R. That list was based on results from the Round 2 sampling (no additional LWG sampling effort in Round 3) and the list of upland groundwater COIs for which the study and associated analyte lists were designed

Loading, Fate and Transport Indicator Chemicals

There are four distinct lists of target analytes for the Loading, Fate, and Transport section of the RI (Table 2):

1. **Target List for Loading Calculations.** This is the target list of chemicals for development of loading estimates for all external loading terms except TZW and subsurface sediment loading to the surface sediment/pore water environment. This target list matches the combined lists of indicator chemicals for sediment, surface water, and biota, recognizing that all loading terms could ultimately load to any of these media. The list is also inclusive of the preliminary draft list of chemicals to be modeled in the hybrid modeling effort (see item 4). It is anticipated that for many loading terms, the data will be inadequate to develop loading estimates for the entire target list (e.g., atmospheric deposition loading estimates will be limited by the available relevant published datasets).
2. **Target List TZW Loading Calculations.** This is the target list of chemicals for development of loading estimates to the study area from upland groundwater plumes. This list matches the TZW indicator chemical list, which is based on upland groundwater COIs.
3. **Target List Equilibrium Partitioning Calculations.** This list presents a target list of analytes that will be evaluated in calculations estimating advective transport of chemicals from surface sediment to surface water and advective transport of chemicals from subsurface sediment to surface sediment/pore water. This list is a subset of the larger target list (item 1), focusing on representative, highly hydrophobic chemicals for which this term is most relevant. The list is inclusive of the highly hydrophobic chemicals on the preliminary draft list of chemicals to be modeled in the hybrid modeling effort (see item 4).
4. **Chemical List for Hybrid Modeling.** The final list is a draft list of the chemicals that will be modeled in the hybrid modeling effort. This list is preliminary and still in discussion by the modeling group. Changes to this list are anticipated.

Site-Wide CSM Chemicals

The list of chemicals identified for the site-wide CSM consists of chemicals that were found to pose major risk based on the comprehensive Round 2 report data evaluation (Table 3). A highly detailed presentation will be developed for each chemical in this section; therefore, it is appropriate to focus efforts on the chemicals considered representative for the development of the FS. This list is preliminary and still in discussion. We expect to finalize it in early fall with input from the baseline risk assessments.